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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/854,143	05/11/2001	Ye Wang	944-001.047	6804
4955	7590	03/01/2004	EXAMINER	
WARE FRESSOLA VAN DER SLUYS & ADOLPHSON, LLP BRADFORD GREEN BUILDING 5 755 MAIN STREET, P O BOX 224 MONROE, CT 06468			ARMSTRONG, ANGELA A	
			ART UNIT	PAPER NUMBER
			2654	15

DATE MAILED: 03/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/854,143

Applicant(s)

WANG ET AL

Examiner

Angela A. Armstrong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9 and 11 is/are allowed.
- 6) ☒ Claim(s) 1-8, 10 and 12-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>6</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

DETAILED ACTION

*Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 09, 2003 has been entered.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5-8, 10, and 12-13, 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamori et al (US Patent No. 5,737,720) in view of Yang et al, "An Inter-Channel Redundancy Removal Approach for High Quality Multi-channel Audio Compression," Presented at the 109<sup>th</sup> AES Convention, Sept. 22-25, 2000, Los Angeles, CA.

Regarding claims 1-3, 5-8, 10, and 12-13, 15-17, Miyamori teaches low bit rate multi-channel audio coding methods using non-linear adaptive bit allocation. Specifically, Miyamori teaches coding audio signals in a sound system having plurality of sound channels for providing M sets of audio signals from input signals, wherein a plurality of intra-channel signal redundancy

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removal devices are used to reduce the audio signal for providing first signals indicative of the reduced audio signals at col. 7, line 8 continuing to col. 9, line 60.

Additionally, Miyamori teaches:

converting the first audio signals in at least two of the plurality of sound channels to second signals in said at least two sound channels at col. 9, lines 28-37,

implementation of a modified discrete cosine transform at col. 8, line 54 continuing to col. 9, line 20,

groups of multiple channels at col. 16, lines 8-12,

accounting for the characteristic of the hearing sense of humans at col. 9, line 28-30; col. 15, lines 3-11,

transmission or storage of the coded audio at col. 8, lines 3-5.

Miyamori does not specifically teach implementation of reducing the inter-channel signal redundancy in second signals of integers or operatively engaging the second signals in at least two sound channels, separately from the intra-channel signal redundancy removal. However, inter-channel signal redundancy was well known in the art.

In a similar field of endeavor, Yang teaches an inter-channel redundancy removal approach for the purpose of improving the performance of the compression system for use with multi-channel audio.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Miyamori, to implement reducing inter-channel signal redundancy, as suggested by Yang, for the purpose of improving the performance of the compression system for use with multi-channel audio, as also suggested by Yang.

3. Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamori et al (US Patent No. 5,737,720) in view of Yang et al, "An Inter-Channel Redundancy Removal Approach for High Quality Multi-channel Audio Compression," Presented at the 109<sup>th</sup> AES Convention, Sept. 22-25, 2000, Los Angeles, CA, and further in view of Chen et al, "Video Compression Using Integer DCT", Image Processing, 2000, Proceedings 2000 International Conference, vol. 2, pages 844-845.

Miyamori and Yang do not specifically teach implementation of reducing the inter-channel signal redundancy in second signals of integers using an integer-to-integer discrete cosine transform.

Chen teaches that the integer DCT can be implemented in a MPEG coder, is reversible, and is very suitable for source coding, and communication in a mobile environment.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the coding system of Miyamori and Yang to implement an integer DCT, as taught by Chen, for the purpose of improving the performance of the coder and to provide for implementation in a mobile environment.

*Allowable Subject Matter*

4. Claims 9 and 11 are allowed.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela A. Armstrong whose telephone number is 703-308-6258. The examiner can normally be reached on Monday-Thursday 7:30-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (703) 305-9645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Angela A. Armstrong  
Examiner  
Art Unit 2654

AAA  
February 22, 2004

*Angela Armstrong*